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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,024	01/29/2004	Satoshi Mikami	19546.0053	2666

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EXAMINER	
KIM, DAVID S	

ART UNIT	PAPER NUMBER
2613	

MAIL DATE	DELIVERY MODE
08/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,024	MIKAMI, SATOSHI	
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7 and 9-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7 and 9-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 May 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Applicant's response to the objection to the drawings in the previous Office Action (mailed on 01 February 2007) is noted and appreciated. Replacement drawings were received on 24 May 2007. These drawings are approved. Accordingly, the previous objection is presently withdrawn.

Claim Objections

2. **Claim 1** is objected to because of the following informalities:

In claim 1, "setting a minimum value" is used where -- setting *a value that corresponds to* a minimum value -- may be intended. That is, Applicant's disclosure teaches a control for setting the amount of dispersion compensation to a value *that corresponds to a* minimum value of bit error rate (e.g., Fig. 12B), not a control for setting the amount of dispersion compensation to a minimum value.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 3-7, and 9-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimoto et al. (U.S. Patent Application Publication No. US 2002/0089724 A1, hereinafter "Nishimoto") in view of Barnard (U.S. Patent No. 6,742,154 B1).

Regarding claim 1, Nishimoto discloses:

An apparatus (e.g., Fig. 1) for controlling compensation of dispersion for compensating for waveform degradation of optical signal caused by characteristic of wavelength dispersion on an optical transmission path, comprising:

a variable compensator (10) of dispersion for compensating for waveform degradation of said optical signal;

a monitoring circuit (12) for generating a quality information of transmission path of the optical signal which has been compensated for the waveform degradation by the variable compensator of dispersion; and

a controlling circuit (13) for controlling an amount of dispersion compensation in the variable compensator of dispersion, based on the quality information of transmission path generated by the monitoring circuit, so as to become a quality of transmission path to a best value (e.g., "optimum value" in paragraph [0064]), the controlling circuit for sweeping (e.g., "swept" in paragraph [0065]) across a variable range of the amount of dispersion compensation in the variable compensator of dispersion, to thereby determine the quality of transmission path, the controlling circuit for setting the amount of the dispersion compensation corresponding to the best value (e.g., "optimum value" in paragraph [0064]) of the quality of transmission path as a value of initial setting (e.g., "initial setting" in paragraph [0064]) in the variable compensator of dispersion; and

the controlling circuit for selecting one control of either

a control for setting a center value in a range of the amount of dispersion compensation (paragraph [0066], "center (averaged value)") as a value of initial setting in the variable compensator of dispersion,

or

a control for setting a minimum value (paragraph [0066], "minimum point") as a value of initial setting in the variable compensator of dispersion.

Nishimoto does not expressly disclose:

the controlling circuit for selecting one control of either

a control for setting a center value in a range of the amount of dispersion compensation ***when the quality of transmission path becomes higher than a preset threshold*** as a value of initial setting in the variable compensator of dispersion,

or

a control for setting a minimum value ***when the quality of transmission path becomes lower than a preset threshold*** as a value of initial setting in the variable compensator of dispersion (emphasis Examiner's).

Nishimoto does disclose the two control procedures. Nishimoto also discloses a condition for determining which control procedure to implement, i.e., "*when a minimum point of the bit error rate is not determined*, the optimum value...may be set...at a center (averaged value)". Nishimoto's condition does not expressly include Applicant's condition of "*when the quality of transmission path becomes higher/lower than a preset threshold*". However, Applicant's condition is an obvious case of Nishimoto's condition.

Consider the teachings of Nishimoto and Barnard. Nishimoto teaches that bit error rate (BER) curves can be located in various positions (Nishimoto, Fig. 6), some with higher bit error rates than others. Barnard teaches that some BER levels can be too small to measure (Barnard, col. 7, l. 10-15). Together, one can see that these teachings suggest that some portions of some BER curves may be too low to measure BER. Such a case corresponds to Nishimoto's condition. That is, some BER curves may have measurable BER minimum point(s). In that case, one would perform the "minimum value" control procedure. On the other hand, some BER curves may have portions where the BER levels are too small to measure. In that case, one would perform the "center value" control procedure. Thus, what is the difference that would lead one to select one control procedure over the other?

The determining difference would be the difference between these two types of BER curves in view of Nishimoto and Barnard. This difference would be the location of the BER curves. That is, one type of BER curve may be located at a position of lower (or higher) quality than another BER curve. As low quality corresponds to high BER and vice versa, one would perform the "minimum value" control procedure for a low quality curve (higher BER), and one would perform the "center value" control procedure for a high quality curve (lower BER). Accordingly, one would simply set some criterion to determine if a BER curve were a low quality (higher BER) curve or a high quality (lower BER) curve. An extremely common and obvious practice for such a binary decision would be the use of a threshold (e.g.,

Nishimoto, the use of various thresholds in Figs. 5-6 for the respective binary decisions). According to this reasoning, Applicant's condition would be an obvious case of Nishimoto's condition.

Regarding claim 3, Nishimoto in view of Barnard discloses:

An apparatus for controlling compensation of dispersion according to claim 1, wherein the quality of transmission path is adopted a bit error rate ("bit error rate" in paragraph [0065]).

Regarding claim 4, Nishimoto in view of Barnard discloses:

An apparatus for controlling compensation of dispersion according to claim 3,

wherein the controlling circuit sweeps across the variable range of the amount the dispersion compensation in the variable compensator of dispersion, to thereby execute a calculation of bit error rate ("bit error rate" in paragraph [0065]) to thereby find the value of initial setting.

Nishimoto in view of Barnard does not expressly disclose:

wherein the controlling circuit sweeps across the variable range of the amount the dispersion compensation in the variable compensator of dispersion, to thereby execute ***a detection of synchronization*** and/or a calculation of bit error rate, ***and skips through a designated step on the sweeping***, to thereby find the value of initial setting ***when the synchronization is not detected.***

However, notice that Nishimoto teaches the use of the apparatus according to SONET (end of paragraph [0054]), which is synchronous. Accordingly, one would obviously expect "a detection of synchronization" in any initialization process, including the process of setting the "value of initial setting".

Additionally, if synchronization is not detected in a synchronous system, such as SONET, then one would generally understand the communication link is not yet ready for normal service operation. Moreover, skipping a designated step is a well-known and intuitively obvious practice in any process. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to skip through a designated step on the sweeping when the synchronization is not detected. One of ordinary skill in the art would have been motivated to do this since one generally skips unnecessary steps to avoid unnecessary use of time and resources. In this case, when the synchronization is not detected, the

communication link would generally not be ready for normal service operation, so performing the entire sweeping process would be unnecessary.

Regarding claim 5, Nishimoto in view of Barnard discloses:

An apparatus for controlling compensation of dispersion according to claim 1,

wherein the controlling circuit sets initially a first threshold (Fig. 6, re-setting operation start threshold) and a second threshold (Fig. 6, search operation threshold) that is lower quality of transmission path than the first threshold on the quality of transmission path, the controlling circuit sweeps across a variable range of the amount of dispersion compensation in the variable compensator of dispersion when the quality of transmission path becomes lower than the first threshold (sweeping for the solid line in Fig. 6), to thereby re-set (new setting in Fig. 6) an amount of dispersion compensation corresponding to a best value of the quality of transmission path in the variable compensator of dispersion.

Regarding claim 6, Nishimoto in view of Barnard discloses:

An apparatus for controlling compensation of dispersion according to claim 1,

wherein the controlling circuit sets initially a first threshold (Fig. 6, re-setting operation start threshold) and a second threshold (Fig. 6, search operation threshold) that is lower quality of transmission path than the first threshold on the quality of transmission path, the controlling circuit sweeps across a variable range of the amount of the dispersion compensation in the variable compensator of dispersion when the quality of transmission path becomes lower than the first threshold (sweeping for the solid line in Fig. 6), to thereby re-set a center value (new setting in Fig. 6) in a range of the amount of dispersion compensation when the quality of transmission path becomes higher than the second threshold (exceeding the "re-setting operation start"/first threshold in paragraph [0069] includes the scope of exceeding the "search operation"/second threshold) in the variable compensator of dispersion.

Regarding claim 7, claim 7 is a method claim that corresponds largely to the apparatus claim 1. Therefore, the recited means in apparatus claim 1 read on the corresponding means in method claim 7. Claim 7 also includes limitations absent from claim 1. Nishimoto in view of Barnard also discloses these limitations:

- performing the sweeping step and the setting step "at initial setting" (initial setting in paragraphs [0064-0066]).

Regarding claim 9, claim 9 is a method claim that introduces limitations that correspond to the limitations introduced by apparatus claim 3. Therefore, the recited means in apparatus claim 3 read on the corresponding steps in method claim 9.

Regarding claim 10, claim 10 is a method claim that corresponds largely to the apparatus claim 4. Therefore, the recited means in apparatus claim 4 read on the corresponding steps in method claim 10. Claim 10 also includes limitations absent from claim 4. Nishimoto in view of Barnard also discloses these limitations:

- performing the sweeping step and skipping step ("skipping" would be included in any initialization process according to the obvious argument presented in the treatment of claim 4 above) "at initial setting" (initial setting in paragraphs [0064-0066]).

Regarding claim 11, Nishimoto in view of Barnard discloses:

A method for controlling compensation of dispersion according to claim 10, the method for controlling compensation of dispersion further comprising the steps of:

at initial setting,

sweeping across the variable range of the amount of dispersion compensation in the variable compensator of dispersion, to thereby execute the determination of the bit error rate and a detection of synchronization (see treatment of claim 10 above)

Nishimoto in view of Barnard does not expressly disclose:

sweeping across the variable range of the amount of dispersion compensation in the variable compensator of dispersion, to thereby execute the determination of the bit error rate and a detection of synchronization ***that detects under conditions of loss of frame, out of frame, and the bit error rate below a designated bit error rate.***

However, notice that Nishimoto teaches the use of the apparatus according to SONET (end of paragraph [0054]), which is synchronous and employs frames. Three common fault conditions related to synchronization detection are loss of frame, out of frame, and insufficient bit error rate. Accordingly, one would obviously expect "a detection of synchronization" to include detection of conditions of loss of frame, out of frame, and the bit error rate below a designated bit error rate.

Regarding claims 12-13, claims 12 and 13 are method claims that introduce limitations that correspond to the limitations introduced by apparatus claims 5 and 6, respectively. Therefore, the recited means in apparatus claims 5-6 read on the corresponding steps in method claims 12-13.

Response to Arguments

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are based on the new limitations introduced by Applicant's most recent amendment filed on 24 May 2007. The new ground of rejection addresses these new limitations with the assistance of newly applied teachings from Barnard. Accordingly, Applicant's arguments are moot.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tomofuji (U.S. Patent No. 6,662,317 B2) is cited to show another method and apparatus for dispersion compensation and another plot of BER versus dispersion (Fig. 3).

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

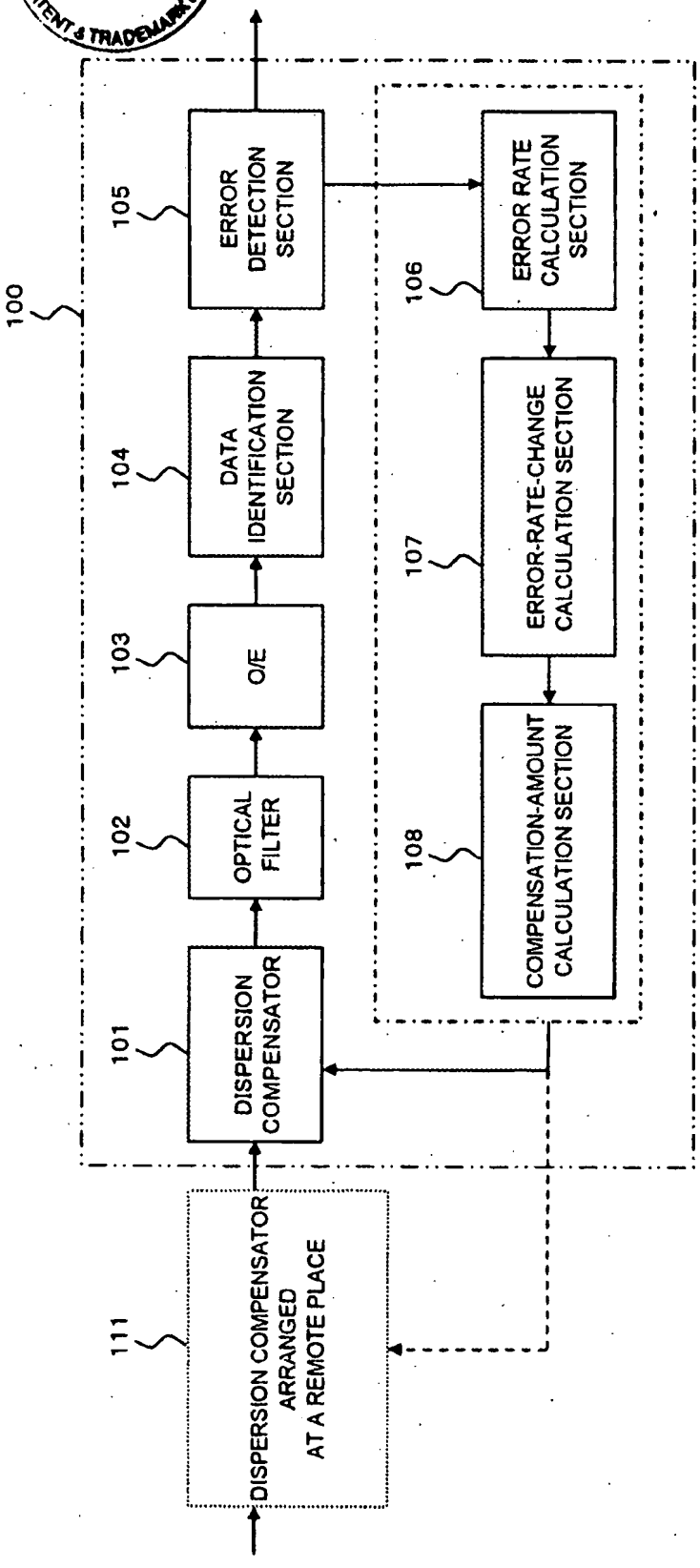
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER

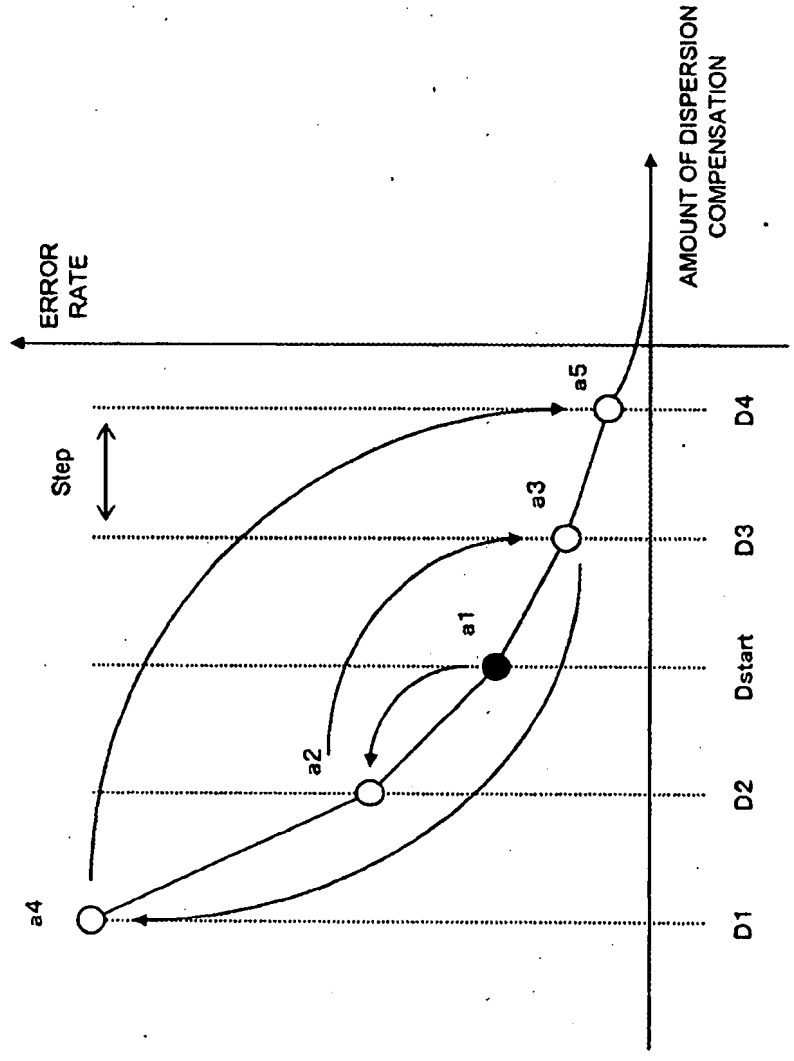
Approved by DSK
26 JULY 2007

FIG. 16
PRIOR ART



Approved by DSK
26 JULY 2007

FIG. 17
PRIOR ART



Approved by DSK
26 JULY 2007

REPLACEMENT SHEET

FIG. 18A
PRIOR ART

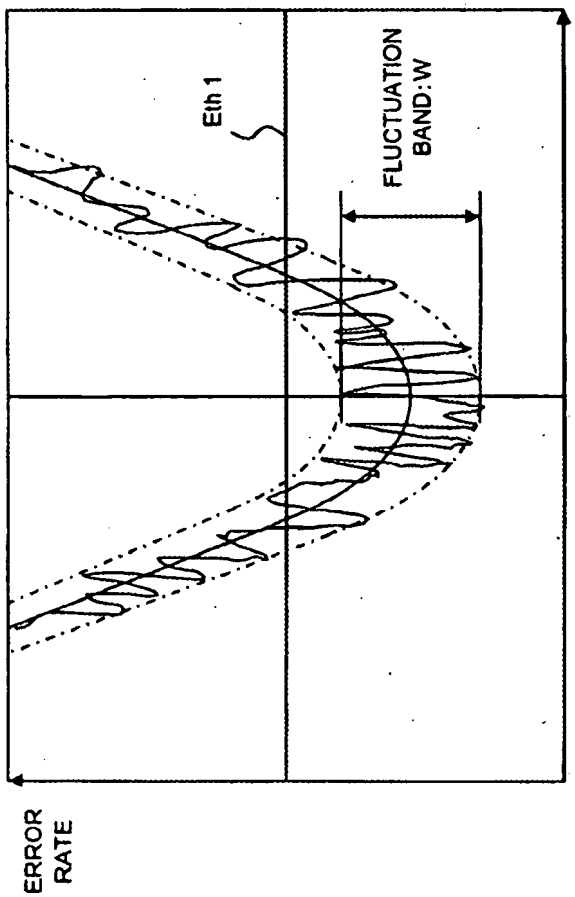


FIG. 18B
PRIOR ART